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Syntax Score-based Assessment For Identifying Priority Of Second Generation Drug Eluting Stent Among All Comer Patients Who Underwent Percutaneous Coronary Intervention

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Background: Although superiority of second generation drug eluting stent (DES) than first generation DES is suggested, that efficacy has not been demonstrated by recent randomized trials. Syntax score-based assessment for outcomes of PCI may help to identify priority of second generation DES.

Methods: We investigated 1264 of all comer patients who underwent percutaneous coronary intervention (PCI) with unrestricted use of DES either first generation (Cypher;531 and Taxus;378) or second generation (Xience or Promus;190 and Nobori;165), and compared between them. We employed syntax score for evaluating severity of coronary artery disease, and patients were classified into three groups by tertile of its score (low; 1-11, intermediate; 12-24, and high; >25). Primary endpoint of this analysis was major adverse cardiac event (MACE) comprised from all cause death, non-fatal myocardial infarction, and any target lesion revascularization.

Results: Of all, based on survival analysis, occurrence of MACE was lower in patients with second generation DES than first generation DES (median: 715days, first; 16.3% vs. second; 11.8 %, P=0.03). According to syntax score-based analysis (low;7.2±3, intermediate;17.7±4, high;37.6±11) for occurrence of MACE, superiority of second generation DES was seen among patients with high syntax score (first; 24.1% vs. second; 15.6%, logrank: P=0.05) in contrast to similar results of low (9.8% vs.6.8%, P=0.62) and intermediate (16.2% vs. 15.3%, P=0.86) syntax score. According to multivariate analysis, statin therapy (hazard ratio:HR;0.56, 95% confidence interval;95%CI; 0.39-0.79, P=0.001), CKD(eGFR<60ml/min, HR:1.79,95%CI;1.28-2.50,P=0.001), and syntax score (HR:1.02, 95%CI; 1.01-1.03, P<0.0001) was independent predictor of occurrence of MACE.

Conclusions: In this all comer study, superiority of second generation DES than first generation DES was seen in patients with high syntax score. Newer technology of DES may contribute to improve the outcomes of such high risk patients. Assessment of lesion complexity was important to evaluate outcomes of PCI using DES. And we should pay attention to statin therapy and CKD to improve outcomes of all patients.

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Biolimus Eluting Stent For de novo coRnary artery disease in patiENts with Diabetes mellituS: the BESTFRIENDS multicentre registry.

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Background: the reduction of arterial wall inflammation and delayed healing could play an important role in decreasing adverse events in complex patients such as diabetics. Biodegradable polymers (bp) may have an advantage over non-erodable polymers because any tendency to inflammation is eliminated after the polymer degrades. Aim of the present study was to assess the efficacy of bp-Biolimus-Eluting Stent (bp-BES) in a large series of consecutive diabetic patients.

Methods: from 2008 to 2012, consecutive diabetic patients who underwent PCI with bp-BES implantation for de novo coronary artery lesions in six European tertiary care centres were retrospectively selected and analyzed. Primary endpoints were the incidence of target lesion revascularization (TLR) and target vessel failure (TVF, defined as cardiac death, MI and target vessel revascularization – TVR-) at long term follow-up.

Results: a total of 650 patients were included in the analysis. Mean age was 66.4±9.7 years and 73.4% of patients were males. IDDM was present in 32.8% of patients and 92.9% had at least one additional cardiovascular risk factor. Clinical presentation was stable angina in 48.5% of cases, followed by ACS/NSTEMI (36.6%), STEMI (8.6%) and silent ischemia (6.3%). Multivessel disease was present in 46.1% of patients and number of vessel and lesion treated per patient were 1.37±0.53 and 1.58±0.64 respectively. Total stent length per patient was 38.4±18.6mm and stent per patient ratio was 1.81±0.71. Median follow-up was 391 days (IQR 290-661). During the hospital stay, no patient died and the incidence of TVF was 0.7%. At follow-up, cumulative incidence of cardiac death was 1.3%, MI rate was 1.1%, TLR and TVR rates were 7.9% and 11.9% respectively. Definite/probable ST occurred in 1.4% of patients. Time to event analysis showed a TLR and TVF-free survival at median FU and at 661 days of 94.7/91% and 91.2/86.1% respectively. At multivariate Cox regression, IDDM was found to be independent predictor of TVF (HR:2.18; 95%CI: 1.32–4.89; p 0.02) at long-term FU.

Conclusions: use of bp-BES in a large unselected population of diabetic patients was related with excellent results both in terms of TLR and TVF at short and long term FU.

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Long-term Outcomes Of The New Generation Drug-Eluting Stents In Patients With Diabetes Mellitus And Single Vessel Disease

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Background: Diabetes mellitus (DM) is an independent predictor of adverse clinical events after drug-eluting stent implantation. New generation drug-eluting stents (DES) have demonstrated their mid-term effectiveness and safety in patients with DM. However, limited data exists for long-term safety and efficacy. Therefore, we investigated the long-term clinical outcomes of new generation DES implantations in patients with DM and single vessel disease.

Methods: We prospectively enrolled 600 consecutive patients. Of these, 418 patients were non-diabetic, whereas 182 had DM. All patients received zotarolimus- or everolimus-eluting stent. The major adverse cardiac events (MACE) including death, non-fatal myocardial infarction (MI) and target lesion revascularization (TLR) were defined as primary end points. Stent thrombosis was also evaluated according to the Academic Research Consortium Definition.

Results: The overall MACE rates were higher in patients with DM, and the difference was statistical significance (5.26% in non-DM patients vs 10.98% in DM patients, p=0.01) during the 3 years follow-up period. Also the overall death (cardiac/non-cardiac) was statistically significantly higher in DM patients as compared with non-DM patients (3.29% vs 0.47%, p=0.01 respectively). Rates of TLR (4.06% non-DM vs 4.94% DM patients, p=0.66) and non-fatal MI (0.71% non-DM vs 2.74% DM patients, p=0.05) were not significantly different between the 2 groups. Notably, patients with DM had a statistically significantly increased definite stent thrombosis rate (0.79% non-DM vs 3.29% DM, p=0.02).

Conclusions: Our study demonstrated that the long term safety of the new generation DES is still a concern in patients with DM, as the overall death and the definite stent thrombosis rate were increased.

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One Year Clinical And Angiographic Outcomes After Everolimus- And Paclitaxel-eluting Stent Implantation For Small Coronary Vessels In Diabetic Patients: Sub-analysis From PLUM And SACRA Registries

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Background: There are limited clinical follow-up data after single drug-eluting stent implantation for small coronary artery diseases in diabetic patients. The aim of this study is to evaluate the one-year clinical and angiographic outcomes following small coronary stenting between everolimus- (EES) and paclitaxel-eluting stent (PES) in diabetic patients.

Methods: PLUM (PROMUS/Xience V Everolimus-ELuting Coronary Stent for sMall coronary artery disease: 264 patients with 279 lesions) and SACRA (SmAll CoronaRy Artery treated by TAXUS Liberté: 245 patients with 258 lesions) registries are prospective, multicenter registries to assess the efficacy of single EES and PES in patients with small coronary artery diseases. Inclusion criteria were 1) Lesions >75% diameter stenosis in vessels <2.5mm in diameter, 2) lesion length <28mm. From these registries, 247 lesions in 235 diabetic patients were selected to evaluate one year clinical and angiographic results.

Results: Major adverse cardiac events between the two groups were similar, however, late loss, one year target lesion revascularization and binary restenosis rates were significantly lower in EES group (Table).